Table S1. STROBE Statement—Checklist of items that should be included in reports of ***cohort studies***

	Item	Recommendation	Manuscript location
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	Title and abstract
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	Abstract
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	Introduction paragraphs 1 and 2
Objectives	3	State specific objectives, including any prespecified hypotheses	Introduction paragraph 3
Methods			
Study design	4	Present key elements of study design early in the paper	Design and Patient Selection
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	Design and Patient Selection, Investigations
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up	Design and Patient Selection, Investigations
		(*b*) For matched studies, give matching criteria and number of exposed and unexposed	Investigations
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	Investigations, Outcome, Definitions
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	Investigations
Bias	9	Describe any efforts to address potential sources of bias	Study Oversight
Study size	10	Explain how the study size was arrived at	N/A
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	Statistical analysis
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	Statistical analysis
		(*b*) Describe any methods used to examine subgroups and interactions	Statistical analysis
		(*c*) Explain how missing data were addressed	Statistical analysis
		(*d*) If applicable, explain how loss to follow-up was addressed	N/A
		(*e*) Describe any sensitivity analyses	Statistical analysis
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—e.g. numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	Results first paragraph
		(b) Give reasons for non-participation at each stage	Flow-chart in the supplement
		(c) Consider use of a flow diagram	Flow-chart in the supplement
Descriptive data	14*	(a) Give characteristics of study participants (e.g. demographic, clinical, social) and information on exposures and potential confounders	Demographics and presenting clinical features, Chest radiograph findings, Laboratory findings, Supportive therapy and medications
		(b) Indicate number of participants with missing data for each variable of interest	Tables 1 to 3 and Tables S2 to S6 in the supplement
		(c) Summarize follow-up time (e.g., average and total amount)	Results first paragraph
Outcome data	15*	Report numbers of outcome events or summary measures over time	Complications and mortality
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Predictors of death. Figures 2 and 3
		(*b*) Report category boundaries when continuous variables were categorized	Figures 2 and 3
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	N/A
Other analyses	17	Report other analyses done—e.g. analyses of subgroups and interactions, and sensitivity analyses	Predictors of death
Discussion			
Key results	18	Summarise key results with reference to study objectives	Discussion first paragraphs
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	Discussion penultimate paragraph
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	Discussion
Generalisability	21	Discuss the generalisability (external validity) of the study results	Discussion last paragraph
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	Funding and Contribution

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at http://www.strobe-statement.org.

Table S2. Signs and symptoms of 4,035 hospitalized patients with COVID-19 stratified according to vital status at study censoring date

Characteristic	Alive (No.=2,904)	Death (No.=1,131)	P value	Total (No.=4,035)
Δt symptoms onset to hospital admission, median (IQR)	5 (2 – 7)	4 (2 – 6)	<0.001	4 (2 – 7)
Admission signs and symptoms – No./with data (%)				
History of fever	2,363/2,885 (81.9)	877/1,115 (78.6)	0.019	3,240/4,000 (81.0)
Cough	2,144/2,885 (74.3)	718/1,099 (65.3)	<0.001	2,862/3,984 (71.8)
Malaise	1,834/2,834 (64.7)	671/1,080 (62.1)	0.132	2,505/3,914 (64.0)
Dyspnoea	1,257/2,867 (43.8)	696/1,113 (62.5)	<0.001	1,953/3,980 (49.1)
Upper respiratory tract symptoms	880/2,812 (31.3)	314/1,066 (29.5)	0.268	1,194/3,878 (30.8)
Myalgia/Arthralgia	777/2,779 (28.0)	170/1,030 (16.5)	<0.001	947/3,809 (24.9)
Sputum production	660/2,869 (23.0)	296/1,094 (27.1)	0.008	956/3,963 (24.1)
Vomiting/Nausea	389/2,839 (13.7)	99/1,085 (9.1)	<0.001	488/3,924 (12.4)
Diarrhea	372/2,830 (13.1)	99/1,082 (9.1)	0.001	471/3,912 (12.0)
Headache	381/2,767 (13.8)	50/1,023 (4.9)	<0.001	431/3,790 (11.4)
Altered consciousness	223/2,847 (7.8)	227/1,084 (20.9)	<0.001	450/3,931 (11.4)
Chest pain	345/2,835 (12.2)	82/1,075 (7.6)	<0.001	427/3,910 (10.9)
Abdominal pain	224/2,834 (7.9)	63/1,075 (5.9)	0.029	287/3,909 (7.3)
Bloody sputum/haemoptysis	75/2,857 (2.6)	24/1,087 (2.2)	0.454	99/3,944 (2.5)
Anosmia	50/2,318 (2.2)	6/855 (0.7)	0.006	56/3,173 (1.8)
Seizures	34/2,862 (1.2)	12/1,086 (1.1)	0.828	46/3,948 (1.2)

Table S3. Vital signs at admission of 4,035 hospitalized patients with COVID-19 stratified according to vital status at study censoring date

Characteristic	Alive (No.=2,904)	Death (No.=1,131)	P value	Total (No.=4,035)
Vital signs at admission				
Temperature				
Median (IQR) – ºC	37.1 (36.5 – 37.9)	37.3 (36.5 – 38.0)	0.005	37.2 (36.5 – 38.0)
Distribution – No./with data (%)			0.030	
<37.5ºC	1,696/2,808 (60.4)	599/1,073 (55.8)		2,295/3,881 (59.1)
37.5 – 38.0ºC	595/2,808 (21.2)	239/1,073 (22.3)		834/3,881 (21.5)
38.1 – 39.0ºC	462/2,808 (16.4)	215/1,073 (20.0)		677/3,881 (17.4)
>39ºC	55/2,808 (2.0)	20/1,073 (1.9)		75/3,881 (1.9)
Heart rate per minute				
Median (IQR)	86 (76 – 98)	86 (76 – 99)	0.698	86 (76 – 98)
Tachycardia (≥ 125 beats per minute) – No./with data (%)	60/2,770 (2.2)	31/1,078 (2.9)	0.193	91/3,848 (2.4)
Respiratory rate per minute				
Median (IQR)	18 (16 – 22)	20 (16 – 26)	<0.001	19 (16 – 24)
Marked tachypnoea (age-adjusted) [a] – No./with data (%)	131/1,511 (8.7)	95/553 (17.2)	<0.001	226/2,064 (10.9)
Systolic BP				
Median (IQR) – mmHg	125 (113 – 140)	130 (113 – 147)	<0.001	127 (113 – 141)
Systolic BP < 90 mmHg – No./with data (%)	45/2,740 (1.6)	23/1,089 (2.1)	0.321	68/3,829 (1.8)
Diastolic BP				
Median (IQR) – mmHg	73 (65 – 81)	70 (61 – 80)	<0.001	72 (64 – 81)
Diastolic BP ≤ 60 mmHg – No./with data (%)	445/2,737 (16.3)	260/1,089 (23.9)	<0.001	705/3,826 (18.4)
Systolic BP < 90 or diastolic BP ≤ 60 mmHg – No./with data (%)	456/2,738 (16.6)	262/1,089 (24.1)	<0.001	718/3,827 (18.8)
SaO_2 room air %				
Median (IQR) – %	95 (92 – 97)	91 (87 – 95)	<0.001	94 (91 – 96)
Low SaO_2 (age-adjusted) [b] – No./with data (%)	517/2,603 (19.9)	425/942 (45.1)	<0.001	942/3,545 (26.6)
PaO_2				
Median (IQR) – mmHg	63 (53 – 75)	60 (50 – 72)	0.001	62 (52 – 74)
Low PaO_2 (age-adjusted) [c] – No./with data (%)	614/1,418 (43.3)	344/700 (49.1)	0.011	958/2,118 (45.2)
Hypoxemia (age-adjusted) [d] – No./with data (%)	710/1,259 (56.4)	427/587 (72.7)	<0.001	1,137/1,846 (61.6)

[a]Age-adjusted marked tachypnoea was defined as either ≥ 30 breaths per minute for patients aged >50 years and ≥ 25 breaths per minute for patients aged ≤ 50 years.
[b]Age-adjusted low SaO2 ≤90% for patients aged >50 years and ≤93% for patients aged ≤50 years
[c]Age-adjusted low PaO_2 PaO_2<60 mmHg for patients aged >50 years and PaO_2<70 mmHg for patients aged ≤50 years
[d]Age-adjusted hypoxemia: either PaO_2<60 mm Hg or O_2 Saturation ≤90% for patients aged >50 years and either PaO_2<70 mm Hg or O_2 Saturation ≤93% for patients aged ≤50 years
Abbreviations: Δt, time from initiation; IQR, interquartile range; eGFR, estimated glomerular filtration rate; SaO2, arterial oxygen saturation; PaO2, arterial partial pressure of oxygen

Table S4. Supportive therapy in hospitalized patients with COVID-19 stratified according to vital status at study censoring date

Supportive therapy	**Alive (N=2,904)**	**Death (N=1,131)**	***P* value**	**Total (N=4,035)**
Oxygen therapy – No./with data (%)	2,131/2,878 (74.0)	1,093/1,118 (97.8)	<0.001	3,224/3,996 (80.7)
Non-invasive ventilation (BiPAP, CPAP, HFNO) – No./with data (%)	286/2,857 (10.0)	242/1,108 (21.8)	<0.001	528/3,965 (13.3)
ICU/ High Dependency Unit admission – No./with data (%)	424/2,866 (14.8)	312/1,122 (27.8)	<0.001	736/3,988 (18.5)
Mechanical ventilation – No./with data (%)	336/2,873 (11.7)	283/1,119 (25.3)	<0.001	619/3,992 (15.5)
Inotropes/vasopressors – No./with data (%)	229/2,856 (8.0)	245/1,112 (22.0)	<0.001	474/3,968 (11.9)
Extracorporeal membrane oxygenation (ECMO) – No./with data (%)	8/2,862 (0.3)	10/1,110 (0.9)	0.009	18/3,972 (0.4)
Renal replacement therapy/dialysis – No./with data (%)	39/2,860 (1.4)	80/1,113 (7.2)	<0.001	119/3,973 (3.0)

Abbreviations: BiPAP, bilevel positive airway pressure; CPAP, continuous positive airway pressure; HFNO, high flow nasal oxygen therapy; ICU, intensive care unit.
Note: the data presented are not adjusted for patient and infection characteristics and conclusions on effectiveness of interventions cannot be drawn

Table S5. Medications used in hospitalized patients with COVID-19 stratified according to vital status at study censoring date

Medication	Alive (No.=2,904)	Death (No.=1,131)	P value	Total (No.=4,035)
Viral targeted medications				
Lopinavir/Ritonavir – No./with data (%)	2,034/2,882 (70.6)	786/1,123 (70.0)	0.716	2,820/4,005 (70.4)
Δt symptoms to start of Rx, days, median (IQR)	7 (4 – 9)	6 (3 – 8)	<0.001	7 (4 – 9)
Δt admission to start of Rx, days, median (IQR)	1 (0 – 2)	1 (1 – 3)	0.002	1 (0 – 2)
Treatment duration, days, median (IQR)	9 (6 – 13)	5 (3 – 8)	<0.001	8 (5 – 12)
Darunavir/ritonavir BID – No./with data (%)	72/2,809 (2.6)	21/1,101 (1.9)	0.226	93/3,910 (2.4)
Δt symptoms to start of Rx, days, median (IQR)	10 (7 – 13)	7 (4 – 11)	0.095	9 (7 – 13)
Δt admission to start of Rx, days, median (IQR)	3 (1 – 4)	2 (0 – 5)	0.418	3 (1 – 5)
Treatment duration, days, median (IQR)	3 (2 – 6)	3 (1 – 7)	0.605	3 (2 – 7)
Darunavir/cobicistat QD – No./with data (%)	150/2,812 (5.3)	48/1,099 (4.4)	0.215	198/3,911 (5.1)
Δt symptoms to start of Rx, days, median (IQR)	8 (5 – 11)	5 (2 – 8)	0.001	7 (4 – 10)
Δt admission to start of Rx, days, median (IQR)	2 (1 – 5)	2 (1 – 5)	0.603	2 (1 – 5)
Treatment duration, days, median (IQR)	4 (1 – 7)	2 (1 – 7)	0.439	4 (1 – 7)
Interferon beta – No./with data (%)	740/2,837 (26.1)	413/1,113 (37.1)	<0.001	1,153/3,950 (29.2)
Δt symptoms to start of Rx, days, median (IQR)	8 (6 – 11)	7 (5 – 10)	<0.001	8 (6 – 11)
Δt admission to start of Rx, days, median (IQR)	3 (1 – 5)	3 (1 – 5)	0.192	3 (1 – 5)
Treatment duration, days, median (IQR)	7 (4 – 10)	4 (2 – 7)	<0.001	6 (3 – 9)
Hydroxychloroquine – No./with data (%)	1,937/2,876 (67.3)	681/1,119 (60.9)	<0.001	2,618/3,995 (65.5)
Δt symptoms to start of Rx, days, median (IQR)	7 (5 – 10)	6 (4 – 9)	<0.001	7 (4 – 10)
Δt admission to start of Rx, days, median (IQR)	2 (1 – 4)	2 (1 – 5)	0.003	2 (1 – 4)
Treatment duration, days, median (IQR)	8 (5 – 11)	5 (3 – 8)	<0.001	7 (5 – 10)
Azithromycin – No./with data (%)	1,118/2,836 (39.4)	381/1,092 (34.9)	0.009	1,499/3,928 (38.2)
Neuraminidase inhibitor – No./with data (%)	73/2,846 (2.6)	30/1,114 (2.7)	0.820	103/3,960 (2.6)
Remdesivir – No./with data (%)	32/2,845 (1.1)	16/1,112 (1.4)	0.417	48/3,957 (1.2)
Δt symptoms to start of Rx, days, median (IQR)	13 (10 – 18)	15 (14 – 18)	0.175	14 (12 – 18)
Δt admission to start of Rx, days, median (IQR)	9 (6 – 11)	10 (7 – 11)	0.494	9 (7 – 11)
Treatment duration, days, median (IQR)	9 (6 – 10)	7 (2 – 9)	0.338	9 (5 – 10)
Ribavirin – No./with data (%)	1/2843 (0.04)	0	0.531	1/3,956 (0.03)
Other antimicrobials				
Antibiotics (other than azithromycin)	2,240/2,876 (77.9)	996/1,123 (88.7)	<0.001	3,236/3,999 (80.9)
Antifungals	81/2,841 (2.9)	47/1,112 (4.23)	0.028	128/3,953 (3.2)
Host-targeted medications				
Tocilizumab – No./with data (%)	246/2,842 (8.7)	127/1,109 (11.4)	0.007	373/3,951 (9.4)
Δt symptoms to start of Rx, days, median (IQR)	11 (9 – 15)	10 (7 – 13)	0.001	11 (8 – 14)
Δt admission to start of Rx, days, median (IQR)	6 (4 – 9)	5 (3 – 8)	0.011	6 (3 – 8)
Treatment duration, days, median (IQR)	1 (0 – 2)	1 (0 – 2)	0.289	1 (0 – 2)
Systemic glucocorticoids (oral, IV) – No./with data (%)	633/2,849 (22.2)	476/1,116 (42.6)	<0.001	1,109/3,965 (28.0)

Abbreviations: Δt, time from initiation; Rx, treatment; IQR, interquartile range
Note: the data presented are not adjusted for patient and infection characteristics and conclusions on effectiveness of interventions cannot be drawn

Table S6. Complications of hospitalized patients with COVID-19 stratified according to vital status at study censoring date

Complication	Alive (No.=2,904)	Death (No.=1,131)	*P* value	Total (N=4,035)
Acute Respiratory Distress Syndrome – No./with data (%)	511/2,876 (17.8)	744/1,103 (67.4)	<0.001	1,255/3,979 (31.5)
Acute kidney injury – No./with data (%)	253/2,880 (8.8)	365/1,120 (32.6)	<0.001	618/4,000 (15.4)
Presumed bacterial pneumonia – No./with data (%)	248/2,857 (8.7)	171/1,097 (15.6)	<0.001	419/3,954 (10.6)
Congestive heart failure – No./with data (%)	75/2,876 (2.6)	155/1,108 (14.0)	<0.001	230/3,984 (5.8)
Blood-stream infection – No./with data (%)	105/2,880 (3.6)	92/1,109 (8.3)	<0.001	197/3,989 (4.9)
Anemia needing transfusion – No./with data (%)	82/2,879 (2.8)	66/1,116 (5.9)	<0.001	148/3,995 (3.7)
Cardiac arrhythmia – No./with data (%)	69/2,876 (2.4)	74/1,117 (6.6)	<0.001	143/3,993 (3.6)
Pleural effusion – No./with data (%)	60/2,876 (2.1)	81/1,120 (7.2)	<0.001	141/3,996 (3.5)
Liver dysfunction – No./with data (%)	55/2,869 (1.9)	49/1,111 (4.4)	<0.001	104/3,980 (2.6)
Gastrointestinal haemorrhage – No./with data (%)	24/2,879 (0.8)	24/1,112 (2.2)	0.001	48/3,991 (1.2)
Coagulation disorder/DIC – No./with data (%)	17/2,876 (0.6)	28/1,107 (2.5)	<0.001	45/3,983 (1.1)
Rhabdomyolysis / Myositis – No./with data (%)	23/2,868 (0.8)	22/1,111 (2.0)	0.002	45/3,979 (1.1)
Bronchiolitis – No./with data (%)	17/2,874 (0.6)	23/1,104 (2.1)	<0.001	40/3,978 (1.0)
Pneumothorax – No./with data (%)	19/2,880 (0.7)	18/1,118 (1.6)	0.005	37/3,998 (0.9)
Cardiac ischemia – No./with data (%)	20/2,878 (0.7)	12/1,115 (1.1)	0.225	32/3,993 (0.8)
Stroke / Cerebrovascular accident – No./with data (%)	12/2,879 (0.4)	14/1,116 (1.2)	0.003	26/3,995 (0.6)
Seizure – No./with data (%)	13/2,877 (0.4)	9/1,118 (0.8)	0.176	22/3,995 (0.5)
Myocarditis – No./with data (%)	5/2,871 (0.2)	11/1,108 (1.0)	<0.001	16/3,979 (0.4)
Acute pancreatitis – No./with data (%)	5/2,867 (0.2)	4/1,112 (0.4)	0.270	9/3,979 (0.2)
Meningitis / Encephalitis – No./with data (%)	2/2,880 (0.1)	6/1,114 (0.5)	0.003	8/3,994 (0.2)
Pericarditis – No./with data (%)	5/2,881 (0.2)	2/1,117 (0.2)	0.970	7/3,998 (0.2)
Endocarditis – No./with data (%)	3/2,883 (0.1)	3/1,112 (0.3)	0.225	6/3,995 (0.1)

Figure S1. Flow chart